

**SEPTEMBER 1998**

*Mountaineering pharmaceuticals (University of Maryland Medical Systems, Baltimore, MD):* "In a double-blind study, we compared the efficacy of a combination of sustained-release acetazolamide and low-dose dexamethasone and acetazolamide alone for prophylaxis against acute mountain sickness (AMS) caused by rapid ascent to high altitude. Before ascent, 13 subjects were randomly assigned to receive a combination of one sustained-release acetazolamide capsule (500 rag) in the afternoon and 4 mg dexamethasone every 12 h, or a combination of the same dose of acetazolamide once daily and a placebo every 12 h. Days 1 and 2 were spent at 3698 m (La Paz, Bolivia), while days 3 and 4 were spent at 5334 m (Mount Chacataya, Bolivia). Ascent was by 2 h motor vehicle ride. Heart rates, peripheral oxygen saturations and a modified score derived from the Environmental Symptom Questionnaire (modified-ESQ) were measured on each day. In addition, weighted averages of the cerebral (AMS-C) and respiratory (AMS-R) symptoms were calculated for days 3 and 4. ... Heart rate and modified-ESQ scores increased on days 3 and 4 compared with the other days in the acetazolamide/placebo group only ( $p < 0.05$ ). Oxygen saturations decreased in both groups on days 3 and 4 ( $p < 0.05$ ), but the decrease was greater in the acetazolamide/placebo group ( $p < 0.05$ ). AMS-C and AMS-R scores rose above the suggested thresholds for indication of AMS on days 3 and 4 in the acetazolamide/placebo group only ( $p < 0.05$ ). ... We conclude that this combination of sustained-release acetazolamide once daily and low-dose dexamethasone twice daily is more effective in ameliorating the symptoms of AMS than acetazolamide alone at the ascent that was studied."<sup>1</sup>

**SEPTEMBER 1973**

*Hyperbaric air and memory (York University, Downsview, Ontario, Canada):* "Three experiments are reported which investigated the effects of hyperbaric air on STM and LTM (short- and long-term memory). In the first experiment the dichotic stimulation technique was used to examine STM at 1, 4 and 7 ata. The second experiment was similar to the first except that an increased pressure (10 ata) was used. A decrement in performance was found in both experiments but this was attributed to a deficit in auditory perception and it was concluded that STM is not affected by hyperbaric air. In the third experiment a free-recall learning task was used to examine input to, and retrieval from, LTM. A decreased rate of learning was found at 10 ata breathing air. After switching to an 80/20 helium-oxygen mixture midway through the learning task the rate of learning returned to that found at the surface although the relative difference in recall that was established breathing air remained. It was concluded that these results indicate a loss of ability to store information in LTM and may explain the amnesia that has sometimes been observed after breathing hyperbaric air."<sup>2</sup>

*Barotrauma mishaps (Air Force Inspection and Safety Center, Norton AFB, CA):* "Barotrauma has been implicated in several USAF accidents and incidents. In order to determine the significance of this disease entity in USAF operational flying, all accidents and incidents reported to the Air Force Inspection and

Safety Center on AF Form 711gA, 'Life Sciences Report of an Individual Involved in an AF Accident/Incident,' for the period 1968 through 1972 were reviewed. Barotitis media with possible medical vertigo resulted in a fatal accident. Barosinusitis was the cause of several incidents which could well have ended in fatal accidents. Barotrauma continues to occur and can be a problem particularly in high performance, single-seat aircraft. Continued educational efforts are required to prevent aircrews from flying with conditions which predispose them to barotrauma."<sup>3</sup>

**SEPTEMBER 1948**

*Say what? (Royal Netherlands Army Air Force, Ypenburg, Holland):* "It is a well-known fact that many pilots develop a certain amount of deafness, which becomes more serious as their number of hours flown increases.

"This form of deafness may present itself in different ways. Sometimes this deafness is slight and transient, e.g., in those cases in which the ossicular chain does not operate properly because of a temporary lower or higher pressure in the middle ear as a result of descending and climbing in the atmosphere. This often results in a slight edema with a swelling of the sub-mucous tissue. After some years this may result in an increased production of fibrous tissue in the middle ear which condition may be the reason of a permanent conduction deafness. ...

"Far more importance has to be given to the permanent type of deafness caused by noise of the engines and of the radio equipment. This deafness is traumatic in origin; it is a deafness of the inner ear, demonstrating itself in the beginning of its development by a diminished perception of the C-5 tuning fork (4096 c.p.s.). As the process continues then eventually the hearing acuity of the C-4 (2048 c.p.s.) and the C-3 (1024 c.p.s.) tuning forks will deteriorate also. ...

"The recruitment factor is responsible for the fact that experienced flyers with a considerable hearing loss do not have the slightest difficulty in their flying duties, although their hearing acuity does not come up to the present hearing standards. ...

"Flying deafness can largely be prevented. Some methods are indicated."<sup>4</sup>

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This column is prepared each month by Walter Dalitsch III, M.D., M.P.H. Most of the articles mentioned here were printed over the years in the official journal of the Aerospace Medical Association. These and other articles are available for download from Mira LibrarySmart via <https://submissions.miracd.com/asmaarchive/Login.aspx>.

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